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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,405	11/12/2003	Thomas Williston Head	67108-021;Dhar 1-1-5-1	6789

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EXAMINER	
WANG, TED M	
ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/706,405	HEAD ET AL.	
	Examiner	Art Unit	
	Ted M. Wang	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to because of the following informalities:

- Claim 11, line 8, delete --- vector; ---.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Frank et al. (US 6,636,555).

- With regard claim 1, Frank et al. discloses a method comprising:

calculating at least a first and second vector magnitude value (Fig.6 elements 610a, 610b outputs, r1 and r2) corresponding to at least a first carrier (Fig.6 element C1 and column 10 lines 1-15) and a second carrier (Fig.6 element C2 and column 10 lines 1-15), respectively;

calculating a composite vector magnitude from the first and second vector magnitude values (Fig.6 element r at adder output and column 12 lines 39-44); and

attenuating at least one of the first and second carriers based on the composite vector magnitude (Fig.6 element 621 and 622 outputs and column 12 lines 45-65).

- With regard claim 2, Frank et al. further discloses wherein composite vector magnitude (Fig.6 element r at adder output) corresponds to a composite carrier comprising at least the first and second carriers (column 12 lines 39-44).
- With regard claim 3, Frank et al. further discloses wherein each carrier comprises an in-phase component and a quadrature phase component (Fig.6 element Xi1, Xq1, Xi2 and Xq2 and column 10 lines 1-15), and wherein each vector magnitude value (Fig.6 element r at adder output) is calculated by:

squaring the in-phase component and the quadrature component (equation 10 and column 12 lines 39-42); and

summing (Fig.6 element adder and equation 10 and column 12 lines 39-42) the squares of the in-phase component and the quadrature component to obtain the composite vector magnitude (equation 10 and column 12 lines 39-42).

- With regard claim 4, Frank et al. further discloses wherein each carrier comprises an in-phase component and a quadrature phase component, and wherein each vector magnitude value is calculated by:

squaring the in-phase component and the quadrature component (equation 10 and column 12 lines 39-42);

summing the squares of the in-phase component and the quadrature component (Fig.6 element adder and equation 10 and column 12 lines 39-42); and

taking the square root of the sum of the squares of the in-phase and quadrature components to obtain the composite vector magnitude (Fig.6 element adder and equation 10 and column 12 lines 39-42).

- With regard claim 5, Frank et al. further discloses comparing the composite vector magnitude with a threshold (column 12 lines 45-49), wherein the attenuating step is conducted if the composite vector magnitude exceeds the threshold (column 12 line 39 – column 13 line 15).
- With regard claim 6, Frank et al. further discloses wherein the attenuating step comprises multiplying at least one of the first and second carriers by an attenuation factor (Fig.6 elements 620 and 630 and column 12 line 39 – column 13 line 15 and column 13 line 65 – column 14 line 48).
- With regard claim 7, Frank et al. further discloses wherein the attenuation factor is based on characteristics of a multi-channel baseband signal modulating at least one of said first and second carrier (equation 10, table 1 and table 2, and column 12 lines 39-52).

- With regard claim 8, Frank et al. further discloses comparing the first vector magnitude value with the second vector magnitude value (column 9 lines 16-33); and attenuating the first carrier if the first vector magnitude value is larger than the second vector magnitude value (column 9 lines 16-33).
- With regard claim 9, Frank et al. further discloses wherein the attenuating step is conducted if the first vector magnitude value is larger by a selected magnitude than the second vector magnitude value (column 9 lines 16-33).
- With regard claim 10, Frank et al. further discloses wherein the vector magnitude calculating step, the composite vector magnitude calculating step, the comparing step, and the attenuating step are carried out at a baseband processing stage (Fig.6 element 630 output C1* and C2*, where the C1* and C2* are the output of amplitude limit circuit as indicated in Fig.4 element 150 output, i.e. The same output as that of Fig.1 element 150 that are before the processing of the modulators, 825a and 825b, (upconvert the baseband signal to RF then amplify it and transmit to the destination). Thus, it is clear that the processes from C1 and C2 to C1* and C2* are carried out at a baseband processing stage.)
- With regard claim 11, Frank et al. further discloses which is a system claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 11, Frank et al. discloses a method for a plurality of carriers (Fig.4 elements Xi1, Xq1, Xi2 and Xq2, the plurality of carriers = 2 carriers), each

carrier having an in-phase component and a quadrature phase component, comprising:

calculating a plurality of vector magnitude values (Fig.4 element 405), each vector magnitude value corresponding to one of said plurality of carriers (Fig.4 elements r1 and r2 and equations 1 and 2) and calculated by squaring the in-phase component and the quadrature component of the carrier (equations 1 and 2) and summing the squares of the in-phase component and the quadrature component (equation 4);

calculating a composite vector magnitude from the plurality of magnitude values (equation 4); and

attenuating at least one of the plurality of carriers by an attenuation factor base on the composite vector magnitude (column 8 lines 1-19).

- With regard claim 12, Frank et al. further discloses wherein calculating the vector magnitude value further comprises taking the square root of the sum of the squares of the in-phase and quadrature components to obtain the vector magnitude value (equations 1 and 2).
- With regard claim 13, Frank et al. further discloses wherein the attenuation factor is based on characteristics of a multi-channel baseband signal modulating at least one of said first and second carrier (equations 3 and 4).
- With regard claim 14, Frank et al. further discloses comparing at least two of said plurality of vector magnitude values (equations 3 and 4); and attenuating at least one of said plurality of carriers based on the comparing step if at least one of said

carriers is larger by a selected magnitude than another vector magnitude value (column 9 lines 16-33).

- With regard claim 15, Frank et al. further discloses wherein the vector magnitude calculating step, the composite vector magnitude calculating step, the comparing step, and the attenuating step are carried out at a baseband processing stage (Fig.4 element 150 output C1* and C2*, where they are before the processing of a modulator (upconvert the baseband signal to RF then amplify it and transmit to the destination) as indicated by Fig.1 elements 825a and 825b. Thus, it is clear that the processes from C1 and C2 to C1* and C2* are carried out at a baseband processing stage.).
- With regard claim 16, Frank et al. further discloses comparing the composite vector magnitude with a threshold, wherein the attenuating step is conducted if the composite vector magnitude exceeds the threshold (equations 3 and 4 and column 8 lines 1-19 and 38-65).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2611

Ted M. Wang